

WHAT IS CLAIMED IS:

1. A method for inhibiting endothelial cell adhesion, endothelial cell migration and/or angiogenesis, comprising administering to a subject in need thereof an effective amount of:

5 (a) an isolated peptide consisting of at least 18 amino acids, comprising tyrosine-histidine (Y-H) or asparagine-histidine (N-H), and at least three hydrophobic amino acids with bulky side chains; or

10 (b) a mutant or derivative of the peptide (a), in which the tyrosine-histidine (Y-H) or asparagine-histidine (N-H) in the peptide (a) was substituted with amino acids selected from the group consisting of serine-histidine (S-H), histidine-histidine (H-H), phenylalanine-histidine (F-H), threonine-histidine (T-H), tyrosine-asparagine (Y-N) and alanine-alanine (A-A).

15 2. The method of Claim 1, wherein the hydrophobic amino acids with bulky side chains are isoleucines (I) or leucines (L).

20 3. The method of Claim 1, wherein the peptide comprises an amino acid sequence represented by (I, D, E or K)-(E, A or Q)-L-(L, R or A)-(N, D or S)-(A, L, K or I)-(L or Y)-(R, N, L or K)-(Y or N)-H-(M, I or G)-(V, L, Q or G)-(G, K, T or D)-(R, S, L or E)-(R, A, E or I)-(V, M, T or L)-(L, C or V)-(T, A, G or S).

4. The method of Claim 3, wherein the peptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 23 to SEQ ID NO: 26.

5. The method of Claim 1, wherein the peptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 17 to SEQ ID NO: 22.

6. The method of Claim 5, wherein the peptide comprises an amino acid sequence selected from the group consisting of SEQ ID NO: 11 to SEQ ID NO: 16.

7. A method for the treatment or prevention of angiogenesis-related diseases, comprising administering to a subject in need thereof an effective amount of:

(a) an isolated peptide consisting of at least 18 amino acids, comprising tyrosine-histidine (Y-H) or asparagine-histidine (N-H), and at least three hydrophobic amino acids with bulky side chains; or

(b) a mutant or derivative of the peptide (a), in which the tyrosine-histidine (Y-H) or asparagine-histidine (N-H) in the peptide (a) was substituted with amino acids selected from the group consisting of serine-histidine (S-H), histidine-histidine (H-H), phenylalanine-histidine (F-H), threonine-histidine (T-H), tyrosine-asparagine (Y-N) and alanine-alanine (A-A).

8. The method of Claim 7, the angiogenesis-related diseases are selected from the group consisting of cancer, vascular malformation, arteriosclerosis, vascular adhesions, edematous sclerosis, corneal graft neovascularization, neovascular glaucoma, diabetic retinopathy, pterygium, retinal degeneration, retrolental fibroplasia, granular conjunctivitis, rheumatoid arthritis, systemic Lupus erythematosus, thyroiditis, psoriasis, capillarectasia, pyogenic granuloma, seborrheic dermatitis and acne.

9. A pharmaceutical composition for the inhibition of angiogenesis, which comprises the following peptide (a) or (b) as an active ingredient:

(a) an isolated peptide consisting of at least 18 amino acids, comprising tyrosine-histidine (Y-H) or asparagine-histidine (N-H), and at least three 5 hydrophobic amino acids with bulky side chains; or

(b) a mutant or derivative of the peptide (a), in which the tyrosine-histidine (Y-H) or asparagine-histidine (N-H) in the peptide (a) was substituted with amino acids selected from the group consisting of serine-histidine (S-H), histidine-histidine (H-H), phenylalanine-histidine (F-H), threonine-histidine (T-H), tyrosine-asparagine 10 (Y-N) and alanine-alanine (A-A).

10. A pharmaceutical composition for the treatment or prevention of angiogenesis-related diseases, which comprises the following peptide (a) or (b) as an active ingredient:

15 (a) an isolated peptide consisting of at least 18 amino acids, comprising tyrosine-histidine (Y-H) or asparagine-histidine (N-H), and at least three hydrophobic amino acids with bulky side chains; or

(b) a mutant or derivative of the peptide (a), in which the tyrosine-histidine (Y-H) or asparagine-histidine (N-H) in the peptide (a) was substituted with amino 20 acids selected from the group consisting of serine-histidine (S-H), histidine-histidine (H-H), phenylalanine-histidine (F-H), threonine-histidine (T-H), tyrosine-asparagine (Y-N) and alanine-alanine (A-A).

11. Use of the following peptide (a) or (b) for the preparation of a pharmaceutical agent for the inhibition of endothelial cell adhesion, endothelial cell migration and/or angiogenesis:

(a) an isolated peptide consisting of at least 18 amino acids, comprising 5 tyrosine-histidine (Y-H) or asparagine-histidine (N-H), and at least three hydrophobic amino acids with bulky side chains; or

(b) a mutant or derivative of the peptide (a), in which the tyrosine-histidine (Y-H) or asparagine-histidine (N-H) in the peptide (a) was substituted with amino acids selected from the group consisting of serine-histidine (S-H), histidine-histidine 10 (H-H), phenylalanine-histidine (F-H), threonine-histidine (T-H), tyrosine-asparagine (Y-N) and alanine-alanine (A-A).

12. Use of the following peptide (a) or (b) for the preparation of an agent for the treatment or prevention of angiogenesis-related diseases:

15 (a) an isolated peptide consisting of at least 18 amino acids, comprising tyrosine-histidine (Y-H) or asparagine-histidine (N-H), and at least three hydrophobic amino acids with bulky side chains; or

(b) a mutant or derivative of the peptide (a), in which the tyrosine-histidine (Y-H) or asparagine-histidine (N-H) in the peptide (a) was substituted with amino acids selected from the group consisting of serine-histidine (S-H), histidine-histidine 20 (H-H), phenylalanine-histidine (F-H), threonine-histidine (T-H), tyrosine-asparagine (Y-N) and alanine-alanine (A-A).